

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1-33. (canceled)

34. (new) A colloid solution of metal particles or metal compound particles comprising at least

(1) metal particles or metal compound particles having an average particle diameter of 1-100 nm,

(2) a water-soluble high molecular weight dispersant containing an N group, and

(3) water and/or a water-soluble organic solvent,

and having the following properties (a) and (b):

(a) exhibiting a change in the maximum absorption wavelength in the range from -2.0 nm to +2.0 nm before and after being stored at room temperature for 180 days at a constant pH in a range from pH4 to pH11, and

(b) exhibiting a change in the maximum absorption wavelength in the range from -2.0 nm to +2.0 nm before and after being stored at 50°C for one year at pH5.

35. (new) A colloid solution of metal particles or metal compound particles comprising

(1) metal particles or metal compound particles having an average particle diameter of 15-40 nm, and the percent of variation in the particle diameter distribution of 30% or less,

(2) a water-soluble high molecular weight dispersant containing an N group,

(3) water and/or a water-soluble organic solvent, further

(4) a surfactant and/or a chelating agent

and having the following properties (a), (b) and (c):

(a) exhibiting a change in the maximum absorption wavelength in the range from -2.0 nm to +2.0 nm before and after being stored at room temperature for 180 days at a constant pH in a range from pH4 to pH11,

(b) exhibiting a change in the maximum absorption wavelength in the range from -2.0 nm to +2.0 nm before and after being stored at 50°C for one year at pH5, and

(c) in the colloid solution achieving a colloid recovery rate of 70% or more when the colloid solution is filtered through a collection test porous membrane and satisfying the following conditions:

(average pore diameter (nm) of the collection test porous membrane) - (average particle diameter (nm) of colloid) > 10 nm.

36. (new) A method for producing a colloid solution of metal particles or metal compound particles, in which the colloid solution comprise at least

(1) metal particles or metal compound particles having an average particle diameter of 1-100 nm,

(2) a water-soluble high molecular weight dispersant containing an N group, and

(3) water and/or a water-soluble organic solvent,

and has the following properties (a) and (b):

(a) exhibiting a change in the maximum absorption wavelength in the range from -2.0 nm to +2.0 nm before and after being stored at room temperature for 180 days at a constant pH in a range from pH4 to pH11 and

(b) exhibiting a change in the maximum absorption wavelength in the range from -2.0 nm to +2.0 nm before and after being stored at 50°C for one year at pH5,

characterized in that the method comprises adding a surfactant and/or a chelating agent after adding a water-soluble high molecular weight dispersant containing an N group to the colloid solution of metal particles or metal compound particles.

37. (new) A method for producing a colloid solution of metal particles or metal compound particles, in which the colloid solution comprise at least

(1) metal particles or metal compound particles having an average particle diameter of 15-40 nm, and the percent of variation in the particle diameter distribution of 30% or less,

(2) a water-soluble high molecular weight dispersant containing an N group,

(3) water and/or a water-soluble organic solvent, further

(4) a surfactant and/or a chelating agent

and has the following properties (a), (b) and (c):

(a) exhibiting a change in the maximum absorption wavelength in the range from -2.0 nm to +2.0 nm before and after being stored at room temperature for 180 days at a constant pH in a range from pH4 to pH11,

(b) exhibiting a change in the maximum absorption wavelength in the range from -2.0 nm to +2.0 nm before and after being stored at 50°C for one year at pH5, and

(c) having a colloid recovery rate of 70% or more when the colloid solution is filtered through a collection test porous membrane and satisfying the following conditions:

(average pore diameter (nm) of the collection test porous membrane) - (average particle diameter (nm) of colloid) > 10 nm, characterized in that the method comprises adding the surfactant and/or chelating agent after adding the water-soluble high molecular weight dispersant containing an N group to the colloid solution of metal particles or metal compound particles.

38. (new) The method for producing a colloid solution according to claim 36, comprising dissolving a metal compound in a solvent, causing the metal particles to form by reducing the

metal compound, then adding a water-soluble high molecular weight dispersant containing an N group, and further adding a surfactant and/or a chelating agent.

39. (new) An adsorption preventive agent capable of preventing metal particles or metal compound particles in a colloid solution containing metal particles or metal compound particles from being adsorbed on a porous membrane, in which the colloid solution comprises (1) a water-soluble high molecular weight dispersant containing an N group and/or (2) a surfactant and/or a chelating agent as effective components.

40. (new) An adsorption preventive agent capable of preventing metal particles or metal compound particles in a colloid solution containing metal particles or metal compound particles from being adsorbed on a porous membrane, characterized in that the colloid solution contains at least (1) metal particles or metal compound particles having an average particle diameter of 1-100 nm, (2) a water-soluble high molecular weight dispersant containing an N group, and (3) water and/or a water-soluble organic solvent,

and has the following properties (a) and (b):

(a) exhibiting a change in the maximum absorption wavelength in the range from -2.0 nm to +2.0 nm before and after being

stored at room temperature for 180 days at a constant pH in a range from pH4 to pH11 and

(b) exhibiting a change in the maximum absorption wavelength in the range from -2.0 nm to +2.0 nm before and after being stored at 50°C for one year at pH5.

41. (new) An adsorption preventive agent capable of preventing metal particles or metal compound particles in a colloid solution containing metal particles or metal compound particles from being adsorbed on a porous membrane, characterized in that the colloid solution comprises at least

(1) metal particles or metal compound particles having an average particle diameter of 15 to 40 nm, and the percent of variation in the particle diameter distribution of 30% or less,

(2) a water-soluble high molecular weight dispersant containing an N group, and

(3) water and/or a water-soluble organic solvent, further

(4) a surfactant and/or a chelating agent

and has the following properties (a), (b) and (c):

(a) exhibiting a change in the maximum absorption wavelength in the range from -2.0 nm to +2.0 nm before and after being stored at room temperature for 180 days at a constant pH in a range from pH4 to pH11 and

(b) exhibiting a change in the maximum absorption wavelength in the range from -2.0 nm to +2.0 nm before and after being stored at 50°C for one year at pH5,

(c) achieving a colloid recovery rate of 70% or more when the colloid solution is filtered through a collection test porous membrane and satisfying the following conditions:

(average pore diameter (nm) of the collection test porous membrane) - (average particle diameter (nm) of colloid) > 10 nm.

42. (new) An adsorption preventive agent capable of preventing metal particles or metal compound particles in a colloid solution containing metal particles or metal compound particles from being absorbed on a cellulose-type porous membrane, in which the colloid solution contains (1) a water-soluble high molecular weight dispersant containing an N group, and (2) a surfactant, or a surfactant and a chelating agent as effective components.

43. (new) An adsorption preventive agent capable of preventing metal particles or metal compound particles in a colloid solution containing metal particles or metal compound particles from being absorbed on a porous membrane of synthetic polymer, in which the colloid solution contains (1) a water-soluble high molecular weight dispersant containing an N group,

and (2) a chelating agent as effective components, provided that the colloid solution does not contain a surfactant.

44. (new) An adsorption preventive method capable of preventing metal particles or metal compound particles in a colloid solution containing metal particles or metal compound particles from being absorbed on a porous membrane, in which the colloid solution contains (1) a water-soluble high molecular weight dispersant containing an N group and/or (2) a surfactant and/or a chelating agent as effective components.

45. (new) An adsorption preventive method capable of preventing metal particles or metal compound particles in a colloid solution containing metal particles or metal compound particles from being absorbed on a porous membrane, characterized in that the colloid solution contains at least

(1) metal particles or metal compound particles having an average particle diameter of 1-100 nm,

(2) a water-soluble high molecular weight dispersant containing an N group and

(3) water and/or a water-soluble organic solvent,

and the colloid solution has the following properties (a) and (b):

(a) exhibiting a change in the maximum absorption wavelength in the range from -2.0 nm to +2.0 nm before and after being

stored at room temperature for 180 days at a constant pH in a range from pH4 to pH11 and

(b) exhibiting a change in the maximum absorption wavelength in the range from -2.0 nm to +2.0 nm before and after being stored at 50°C for one year at pH5.

46. (new) An adsorption preventive method capable of preventing metal particles or metal compound particles in a colloid solution containing metal particles or metal compound particles from being absorbed on a cellulose-type porous membrane, in which the colloid solution contains (1) a water-soluble high molecular weight dispersant containing an N group, and (2) a surfactant, or a surfactant and a chelating agent as effective components.

47. (new) An adsorption preventive method capable of preventing metal particles or metal compound particles in a colloid solution containing metal particles or metal compound particles from being absorbed on a porous membrane of synthetic polymer, in which the colloid solution contains (1) a water-soluble high molecular weight dispersant containing an N group, and (2) a chelating agent as effective components, provided that the colloid solution does not contain a surfactant.

48. (new) The adsorption preventive method according to claim 14, wherein the porous membrane of synthetic polymer comprises a thermoplastic polymer of which the surface is hydrophilized, and the thermoplastic polymer is polyvinylidene fluoride or polyether sulfone.

49. (new) The adsorption preventive method according to claim 44, achieving a colloid recovery rate of 70% or more when the colloid solution is filtered through a collection test porous membrane and satisfying the following conditions:

(average pore diameter (nm) of the collection test porous membrane) - (average particle diameter (nm) of colloid) > 10 nm.

50. (new) The adsorption preventive method according to claim 44, wherein the metal particles comprise at least one of gold, silver, platinum, rhodium, palladium, ruthenium, iridium, osmium, iron, and copper.

51. (new) The adsorption preventive method according to claim 44, wherein the water-soluble high molecular weight dispersant containing the N group is poly(vinylpyrrolidone) or a poly(vinylpyrrolidone) copolymer.

52. (new) The adsorption preventive method according to claim 44, wherein the surfactant is dodecylsulfuric acid or its salt.

53. (new) The adsorption preventive method according to claim 44, wherein the chelating agent comprises at least one of tripolyphosphoric acid, polyacrylic acid, polyacrylic acid copolymer, ethylenediaminetetraacetic acid, and salts thereof.

54. (new) An integrity test method of a virus removal membrane comprising causing a colloid solution of metal particles or metal compound particles to be filtered through the virus removal membrane which was used for virus removal, in which the colloid solution contains at least

(1) metal particles or metal compound particles having an average particle diameter of 1-100 nm,

(2) a water-soluble high molecular weight dispersant containing an N group, and

(3) water and/or a water-soluble organic solvent,

and has the following properties (a) and (b):

(a) exhibiting a change in the maximum absorption wavelength in the range from -2.0 nm to +2.0 nm before and after being stored at room temperature for 180 days at a constant pH in a range from pH4 to pH11 and

(b) exhibiting a change in the maximum absorption wavelength in the range from -2.0 nm to +2.0 nm before and after being stored at 50°C for one year at pH5.

55. (new) An integrity test method of a virus removal membrane comprising

causing a colloid solution of metal particles or metal compound particles with an average particle diameter of 1 to 100 nm to be filtered through the virus removal membrane which is a cellulose-type porous membrane and has been used for virus removal,

in which the colloid solution contains at least

(1) a water-soluble high molecular weight dispersant containing an N group, and
(2) a surfactant, or a surfactant and a chelating agent as effective components.

56. (new) An integrity test method of a virus removal membrane comprising

causing a colloid solution of metal particles or metal compound particles with an average particle diameter of 1 to 100 nm to be filtered through the virus removal membrane which is a synthetic polymer porous membrane comprising a thermoplastic polymer of which the surface is hydrophilized and used for virus removal,

in which the colloid solution contains at least

- (1) a water-soluble high molecular weight dispersant containing an N group, and
- (2) a chelating agent

as effective components, provided that the colloid solution does not contain a surfactant.

57. (new) The integrity test method according to claim 56, wherein the thermoplastic polymer is polyvinylidene fluoride or polyether sulfone.

58. (new) The integrity test method according to claim 54, achieving a colloid recovery rate of 70% or more when the colloid solution is filtered through a collection test porous membrane made of the same material as the virus removal membrane and satisfying the following conditions:

(average pore diameter (nm) of the collection test porous membrane) - (average particle diameter (nm) of colloid) > 10 nm.

59. (new) The integrity test method according to claim 54, wherein the metal particles comprise at least one of gold, silver, platinum, rhodium, palladium, ruthenium, iridium, osmium, iron, and copper.

60. (new) The integrity test method according to claim 54,
wherein

the average particle diameter of metal particles or metal compound particles is 15 to 40 nm and the percent of variation in the particle diameter distribution is 30% or less.

61. (new) The integrity test method according to claim 54,
wherein the water-soluble high molecular weight dispersant containing the N group is poly(vinylpyrrolidone) or a poly(vinylpyrrolidone) copolymer.

62. (new) The integrity test method according to claim 55,
wherein the surfactant is dodecylsulfuric acid or its salt.

63. (new) The integrity test method according to claim 55,
wherein the chelating agent comprises at least one of tripolyphosphoric acid, polyacrylic acid, polyacrylic acid copolymer, ethylenediaminetetraacetic acid, and salts thereof.